

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**  
(PCT Article 36 and Rule 70)



Rec'd PCT/PTO 09 2004

D 25 AUG 2004  
WIPO PCT

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| Applicant's or agent's file reference<br>LU6021   | <b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416) |  |
| International application No.<br>PCT/EP 03/06042  | International filing date (day/month/year)<br>10.06.2003   | Priority date (day/month/year)<br>12.06.2002 |
| International Patent Classification (IPC) or both national classification and IPC<br>C08F297/08 |  |  |
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1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

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|---|--|
| Date of submission of the demand<br>20.11.2003  | Date of completion of this report<br>25.08.2004  |
| Name and mailing address of the international preliminary examining authority:<br> European Patent Office - P.B. 5818 Patentlaan 2<br>NL-2280 HV Rijswijk - Pays Bas<br>Tel. +31 70 340 - 2040 Tx: 31 651 epo nl<br>Fax: +31 70 340 - 3016 | Authorized Officer<br>Kaumann, E<br>Telephone No. +31 70 340-3640<br> |

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/06042**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-28 as originally filed

**Claims, Numbers**

1-11 received on 02.07.2004 with letter of 02.07.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

|                               |             |      |
|-------------------------------|-------------|------|
| Novelty (N)                   | Yes: Claims |      |
|                               | No: Claims  | 1-11 |
| Inventive step (IS)           | Yes: Claims |      |
|                               | No: Claims  | 1-11 |
| Industrial applicability (IA) | Yes: Claims | 1-11 |
|                               | No: Claims  |      |

**2. Citations and explanations**

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Subject-matter**

Subject-matter of claim 1 of the present application is a propylene polymer composition comprising (A) a propylene polymer containing 1 to 20 wt.- % of olefins other than propylene, and (B) a propylene polymer containing 10 to 30 wt.- % of olefins other than propylene.

The polymers (A) and (B) are present as separate phases and the content of n-hexane soluble material is  $\leq 2,6$  wt.-%.

(Claim 2) The composition has a haze value of  $\leq 30$  % and a Tensile E modulus of 100 to 5000 MPa.

(Claim 6) Polymer (B) has a glass transition temperature of  $-20^{\circ}\text{C}$  to  $-40^{\circ}\text{C}$ .

(Claim 7) The composition has a molecular weight distribution of 1,5 - 3,5 and

(Claim 8) a  $M_n$  of 50,000 to 500,000 g/mol.

A further subject-matter (claim 9) is a two stage process.

Further subject-matter (claim 10) is the use of the polymer composition for producing fibers, films and mouldings and (claim 11) fibres, films and mouldings comprising the composition..

**2. Prior Art**

D1 = EP 1 002 814, cited in the application,

D2 = EP 0 704 463

D4 = WO 94/28042, cited in the application,

D5 = WO 93/06145, cited in the application

D6 = EP 0 778 294

D7 = WO 02/40561

**3. Article 33(2) PCT (Novelty)**

3.1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **independent claims 1, 9, 10 and 11** is not new in the sense of Article 33(2) PCT.

D1 discloses a propylene block polymer resin composition comprising a block (a), which

consists of propylene and only a small amount of comonomer (less than 10 %) and a block (b), which is a propylene copolymer having a comonomer content of 10 to 80 % by mole. On page 10, line 12 to page 11, line 23, suitable metallocene catalyst components are disclosed. The ratio between blocks a and (b) is 50 : 95 to 50 : 5 (see par. 0047).

The two polymers of D1 appears to be present as separate blocks. Since they are prepared using a metallocene catalyst, it is assumed that their content of n- hexane soluble material is as low as claimed.

Fibres and moulded articles from the polymer compositions of D1 are disclosed in claims 17 - 25 of D1

Therefore, the subject-matter of present independent **claims 1, 9, 10 and 11** lacks novelty regarding D1.

**D2** discloses a multistage process for producing a propylene polymer composition comprising the use of a bridged metallocene catalyst, which may also have an aryl substituent in the 4- position of an indenyl ring (see page 8, line 1 to page 10, line 21). The composition according to D2 comprises 20 - 90 % of a propylene (co) polymer (a) containing not less than 80 % propylene units, and of 5 to 75 % of a propylene/olefin copolymer (b) and a further ethylene copolymer (c) (see claim 1 of D2).

The presence of copolymer (c) is not a distinguishing feature of the composition of present claim 1 comprising (A) and (B).

Moulded articles and films from the composition of D2 are mentioned on page 22, lines 29 to 29.

Therefore, the subject-matter of present independent **claims 1, 9, 10 and 11** lacks novelty regarding D2.

**D4** discloses multiphase propylene block polymers which are prepared using a metallocene catalyst system (see page 4, line 27 to page 7, line 25). The multiphase block polymers consist of a) a propylene polymer having a comonomer content of 0 - 5 wt % and b) a propylene copolymer having a content of monomers other than propylene of 5 - 98. preferably 10 - 96 wt. % (see claim 1 and page 2, lines 28 - 40). The distribution of a) to b) is 20 - 98 to 2 - 80 % (see claim 3).

Sheets and films from the composition of D4 are mentioned in claim 9.

Therefore, the subject-matter of present independent **claims 1, 9, 10 and 11** lacks novelty regarding D4.

**D5** discloses a two step process for producing multi phase block copolymers consisting of a matrix A) of homopolypropylene or a copolymer having a small content of comonomer of up to 10 wt.-%, preferably up to 4 wt.-%, and of a copolymer phase B having a preferred ethylene content of 10 to 65 wt.-%, specially preferred 20 to 55 wt.-% (see page 2, line 33 to page 3, line 21).

These copolymers are prepared using a bridged metallocene catalyst. (see page 5, line 1 to page 7, line 23 and claims).

The table shows narrow molecular weight distributions.

Claims 7 and 8 of **D5** relate to films and fibres of the claimed polymer compositions.

Therefore, the subject-matter of present independent **claims 1, 9, 10 and 11** lacks novelty regarding **D5**.

**D6** discloses propylene polymers comprising two different polymer components, (I) from 25 to 97 % of a propylene polymer containing 0 - 15 % comonomer and (II) from 3 - 75 % of a propylene copolymer, containing 15 to 80 wt.-% units of olefin other than propylene.

Claim 9 of **D6** relates to films and fibres of the claimed polymer compositions.

These polymer compositions are produced using a Ziegler-Natta catalyst, thus **D6** is not relevant for the process claim 9.

Therefore, the subject-matter of present independent **claims 1, 10 and 11** lacks novelty regarding **D6**.

**D7** discloses a polymer composition comprising 55 - 74 % of a propylene polymer containing less than or equal to 1 % of comonomer and 26 - 45 % of a propylene-ethylene copolymer including 3,5 - 15 wt.-% of ethylene.

Films and sheets of these polymers are disclosed in claim 18 of **D7**.

These polymer compositions are produced using a Ziegler-Natta catalyst, thus **D7** is not relevant for the process claim 9.

Therefore, the subject-matter of present independent **claims 1, 10 and 11** lacks novelty regarding **D7**.

3.2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **dependent claims 3,4,5,7 and 8** is not new in the sense of Article

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33(2) PCT.

The subject-matter of claims 3,4,5,7 and 8 is directly disclosed in the above mentioned prior art.

3.3. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **dependent claims 2 and 6** is not new in the sense of Article 33(2) PCT.

Since the polymer composition of present claim 1 is identical to the polymer compositions described in the cited prior art, it appears obvious that the parameters, described in present claims 2 and 6 are also fulfilled by the polymer compositions disclosed in the prior art.

**4. Article 33(3) PCT (Inventive Step)**

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 - 11 does not involve an inventive step in the sense of Article 33(3) PCT.

It is obvious that an inventive step can not be acknowledged to the claims which are not novel.

**5. Article 33(4) PCT (Industrial Applicability)**

Since propylene polymer compositions are very important industrial products, industrial applicability can be acknowledged.